

CLAIMS

1. A porphyrin compound containing a biotinyl group represented by Formula (I):

Por-A-Bi

5 wherein Por represents a porphyrin residue optionally forming a metal complex; Bi represents an optionally substituted biotinyl group; and A represents a C₁-C₃₀ hydrocarbyl group, or a C₁-C₃₀ heterohydrocarbyl group having 1-10 heteroatoms selected from a group consisting of oxygen, sulfur, and nitrogen.

10 2. The compound according to claim 1, wherein Por is a porphyrin residue that has formed a metal complex selected from a group consisting of heme a, heme b, heme c, variant heme c, heme d, heme d1, siroheme, and heme o.

15 3. The compound according to claim 1 or 2, wherein the Por is a heme b residue.

4. The compound according to claim 1, wherein the Por is a porphyrin residue selected from a group consisting of uroporphyrin-I, uroporphyrin-II, coproporphyrin-III, protoporphyrin-IX), and hematoporphyrin-IX.

5. The compound according to any of claims 1 to 4, wherein the Bi is a biotinyl group.

20 6. The compound according to any of claims 1 to 5, wherein the A is a straight chain or branched alkylene group of 1-20 carbon atoms, and one or more than one of the non-adjacent CH₂ groups of the alkylene group is optionally substituted by -NH-, -NH-NH-, -NHCO-, -CONH-, -N(C₁₋₃ alkyl)-, -O-, -S-, -CO-, -O-CO-, -S-CO-, -O-COO-, -CO-S-, -CO-O-, -CH(halogen)-, -CH(CN)-, -CH=CH-, -NH-NH-CO- or -CO-NH-NH-.

25 7. The compound of any of claims 1 to 6, wherein the A is selected from a group consisting of

- NH-NH-,

- NH-NH-CO-(CH₂)_n-NH-,

- NH-NH-CO-(CH₂)_n-NH-CO-(CH₂)_n-NH-,

- NH-(CH₂)_n-NH-,

30 - NH-NH-CO-(CH₂)_n-NH-,

- NH-NH-CO-(CH₂)_n-CO-NH-NH-,

- NH-(CH₂)_n-CO-NH-NH-, and

- NH(CH₂)_n-CO-NH-(CH₂)_n-CO-NH-NH-

in these formulae each n independently represents 1-10.

35 8. A method for preparing the porphyrin compound containing a biotinyl group

according to claim 1, comprising reacting a porphyrin optionally forming a metal complex with a compound containing a terminally aminated biotinyl group in the presence of a coupling agent.

9. A hemoprotein purification method, comprising a step of performing affinity chromatography using the compound according to claim 1.

10. A hemoprotein purification kit, comprising the compound according to claim 1 and carrier beads with an avidin compound bonded thereto.

11. A hemoprotein labeling compound that is the compound according to claim 1.

12. A method for detecting hemoprotein using the labeling compound according to claim 11.

13. A diagnostic agent for hemoprotein-associated diseases, comprising the labeling compound according to claim 11.

14. A therapeutic drug for photodynamic therapy, comprising the compound according to claim 4.

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